

CLAIMS

1. A pressurized gas canister transport apparatus comprising:

a) a frame that has a bottom panel, having a periphery, an upper panel having a periphery, and a central generally vertically extending panel that has an upper end portion attached to the top panel and a lower end portion attached to the bottom panel;

b) one or more inclined structural members that connect the upper and lower panels at positions spaced away from the central panel;

c) first and second tank storage spaces being provided on opposing sides of the central panel and extending between the upper and lower panels;

15 d) a plurality of clamps connected to the central panel and including clamps on opposing sides of said central panel; and

e) transversely extending members that span between said inclined members at positions in between said upper and 20 lower panels; and

f) each clamp having bolted connections that enable the clamps to hold a pressurized gas canister when the bolted connection is tightened and to release a gas cylinder when the bolted connection is loosened.

25 2. The pressurized gas canister transport apparatus of claim 1 wherein each clamp includes a first section attached to the central panel and a second section that removably attaches to the first section with said bolted connections.

3. The pressurized gas canister transport apparatus of 30 claim 2 wherein said first section is shaped to conform to the outer surface of generally a pressurized gas canister being transported.

4. The pressurized gas canister transport apparatus of

claim 2 wherein said second section is shaped to conform to the outer surface of generally a pressurized gas canister being transported.

5. The pressurized gas canister transport apparatus of claim 1 wherein the clamps include a plurality of upper clamps and a plurality of lower clamps that are below the upper clamps.

6. The pressurized gas canister transport apparatus of claim 1 wherein the transversely extending members include upper transversely extending members and lower transversely extending members that are below the upper transversely extending members.

7. The pressurized gas canister transport apparatus of claim 1 wherein the inclined structural members are generally vertically positioned.

8. The pressurized gas canister transport apparatus of claim 7 wherein the frame has four corners, each corner being occupied by one of said inclined structural members.

9. The pressurized gas canister transport apparatus of claim 1 wherein the upper panel and central panel are welded together with a welded connection.

10. The pressurized gas canister transport apparatus of claim 1 wherein the lower panel and central panel are welded together with a welded connection.

25 11. The pressurized gas canister transport apparatus of claim 1 further comprising a plurality of lifting receptacles on the frame that enable the frame to be lifted by more than one type of lifting device, at least one device being a forklift, and another of the devices being a crane.

30 12. The pressurized gas canister transport apparatus of claim 11 wherein one of the lifting receptacles is attached to the bottom panel.

13. The pressurized gas canister transport apparatus of

claim 11 wherein one of the lifting receptacles is attached to the upper panel.

14. The pressurized gas canister transport apparatus of claim 1 wherein at least three levels of safety are associated with the frame for preventing inadvertent removal of a pressurized gas canister from the frame during use, said level of safety being defined by: 1) the bolted connection that holds the as canister to the central panel; 2) the inclined and transverse members being configured to hold a canister in one of the storage spaces; and 3) a cotter pin that prevents loosening of a bolted connection.

15. A pressurized gas canister transport apparatus comprising:

a) a frame that has a bottom panel, having a periphery, an upper panel having a periphery, and a central generally vertically extending panel that has an upper end portion attached to the top panel and a lower end portion attached to the bottom panel;

b) one or more inclined structural members that connect the upper and lower panels at positions spaced away from the central panel;

c) first and second tank storage spaces being provided on opposing sides of the central panel and extending between the upper and lower panels;

d) a plurality of clamps connected to the central panel and including clamps on opposing sides of said central panel; and

e) transversely extending members that span between said inclined members at positions in between said upper and lower panels; and

f) each clamp having bolted connections that enable the clamps to hold a pressurized gas canister when the bolted connection is tightened and to release a gas cylinder when

the bolted connection is loosened;

g) the upper and lower panels each having a lifting receptacle that enables a lifting device to connect to the receptacle enabling the lifting device to lift the frame.

5 16. The pressurized gas canister transport apparatus of claim 15 wherein each clamp includes a first section attached to the central panel and a second section that removably attaches to the first section with said bolted connections.

10 17. The pressurized gas canister transport apparatus of claim 15 wherein said first section is shaped to conform to the outer surface of generally a pressurized gas canister being transported.

15 18. The pressurized gas canister transport apparatus of claim 15 wherein said second section is shaped to conform to the outer surface of generally a pressurized gas canister being transported.

20 19. The pressurized gas canister transport apparatus of claim 15 wherein the clamps include a plurality of upper clamps and a plurality of lower clamps that are below the upper clamps.

25 20. The pressurized gas canister transport apparatus of claim 15 wherein the transversely extending members include upper transversely extending members and lower transversely extending members that are below the upper transversely extending members.

21. The pressurized gas canister transport apparatus of claim 15 wherein the inclined structural members are generally vertically positioned.

30 22. The pressurized gas canister transport apparatus of claim 15 wherein the frame has four corners, each corner being occupied by one of said inclined structural members.

23. The pressurized gas canister transport apparatus of claim 15 wherein the upper panel and central panel are welded

together with a welded connection.

24. The pressurized gas canister transport apparatus of claim 15 wherein the lower panel and central panel are welded together with a welded connection.

5       25. The pressurized gas canister transport apparatus of claim 14 wherein at least three levels of safety are associated with the frame for preventing inadvertent removal of a pressurized gas canister from the frame during use, said level of safety being defined by: 1) the bolted connection 10 that holds the as canister to the central panel; 2) the inclined and transverse members being configured to hold a canister in one of the storage spaces; and 3) a cotter pin that prevents loosening of a bolted connection.

26. A pressurized gas canister transport apparatus 15 comprising:

a) a liftable frame that has a bottom panel having a periphery, an upper panel having a periphery, and a central generally vertically extending panel that has an upper end portion attached to the top panel and a lower end portion 20 attached to the bottom panel along a line that divides the top into two sections;

b) a plurality of inclined structural corner members that connect the upper and lower panels at corner positions spaced away from the central panel;

25       c) first and second tank storage spaces being provided on opposing sides of the central panel and extending between the upper and lower panels each storage tank space being sized and shaped to hold at least two gas canisters;

d) a plurality of clamps connected to the central 30 panel and including clamps on opposing sides of said central panel and at multiple elevations; and

e) transversely extending members that span between said each of inclined said corner members at positions in

between said upper and lower panels; and

f) each clamp having removable connections that enable the clamps to hold a pressurized gas canister when the removable connection is tightened and to release a gas cylinder when the removable connection is removed.

27. The pressurized gas canister transport apparatus of claim 26 wherein each clamp includes a first section attached to the central panel and a second section that removably attaches to the first section with said bolted connections.

10 28. The pressurized gas canister transport apparatus of claim 27 wherein said first section is shaped to conform to the outer surface of generally a pressurized gas canister being transported.

15 29. The pressurized gas canister transport apparatus of claim 27 wherein said second section is shaped to conform to the outer surface of generally a pressurized gas canister being transported.

20 30. The pressurized gas canister transport apparatus of claim 26 wherein the clamps include a plurality of upper clamps and a plurality of lower clamps that are below the upper clamps.

25 31. The pressurized gas canister transport apparatus of claim 26 wherein the transversely extending members include upper transversely extending members and lower transversely extending members that are below the upper transversely extending members.

32. The pressurized gas canister transport apparatus of claim 26 wherein the inclined structural members are generally vertically positioned.

30 33. The pressurized gas canister transport apparatus of claim 32 wherein the frame has four corners, each corner being occupied by one of said inclined structural members.

34. The pressurized gas canister transport apparatus of

claim 26 wherein the upper panel and central panel are welded together with a welded connection.

35. The pressurized gas canister transport apparatus of claim 26 wherein the lower panel and central panel are welded together with a welded connection.

36. The pressurized gas canister transport apparatus of claim 26 further comprising a plurality of lifting receptacles on the frame that enable the frame to be lifted by more than one type of lifting device, at least one device being a forklift, and another of the devices being a crane.

37. The pressurized gas canister transport apparatus of claim 11 wherein one of the lifting receptacles is attached to the bottom panel.

38. The pressurized gas canister transport apparatus of claim 11 wherein one of the lifting receptacles is attached to the upper panel.

39. The pressurized gas canister transport apparatus of claim 1 wherein at least three levels of safety are associated with the frame for preventing inadvertent removal of a pressurized gas canister from the frame during use, said level of safety being defined by: 1) the bolted connection that holds the canister to the central panel; 2) the inclined and transverse members being configured to hold a canister in one of the storage spaces; and 3) a cotter pin that prevents loosening of a bolted connection.

40. A pressurized gas canister transport apparatus comprising:

a) a liftable frame that has a bottom panel, having a periphery, an upper panel having a periphery, and a central generally vertically extending panel that has an upper end portion attached to the top panel and a lower end portion attached to the bottom panel said frame having connectors at the top panel and at the bottom panel for attaching a lifting

device to the frame at a selected upper or lower position;

b) one or more inclined structural members that connect the upper and lower panels at positions spaced away from the central panel;

5 c) first and second tank storage spaces being provided on opposing sides of the central panel and extending between the upper and lower panels;

d) a plurality of clamps connected to the central panel and including clamps on opposing sides of said central 10 panel; and

e) transversely extending members that span between said inclined members at positions in between said upper and lower panels; and

f) each clamp having bolted connections that enable 15 the clamps to hold a pressurized gas canister when the bolted connection is tightened and to release a gas cylinder when the bolted connection is loosened;

g) the upper and lower panels each having a lifting receptacle that enables a lifting device to connect to the 20 receptacle enabling the lifting device to lift the frame.

41. The pressurized gas canister transport apparatus of claim 40 wherein each clamp includes a first section attached to the central panel and a second section that removably attaches to the first section with said bolted connections.

25 42. The pressurized gas canister transport apparatus of claim 40 wherein said first section is shaped to conform to the outer surface of generally a pressurized gas canister being transported.

43. The pressurized gas canister transport apparatus of 30 claim 40 wherein said second section is shaped to conform to the outer surface of generally a pressurized gas canister being transported.

44. The pressurized gas canister transport apparatus of

claim 40 wherein the clamps include a plurality of upper clamps and a plurality of lower clamps that are below the upper clamps.

45. The pressurized gas canister transport apparatus of  
5 claim 40 wherein the transversely extending members include  
upper transversely extending members and lower transversely  
extending members that are below the upper transversely  
extending members.

46. The pressurized gas canister transport apparatus of  
10 claim 40 wherein the inclined structural members are  
generally vertically positioned.

47. The pressurized gas canister transport apparatus of  
claim 40 wherein the frame has four corners, each corner  
being occupied by one of said inclined structural members.

15 48. The pressurized gas canister transport apparatus of  
claim 40 wherein the upper panel and central panel are welded  
together with a welded connection.

49. The pressurized gas canister transport apparatus of  
claim 40 wherein the lower panel and central panel are welded  
20 together with a welded connection.

50. The pressurized gas canister transport apparatus of  
claim 40 wherein at least three levels of safety are  
associated with the frame for preventing inadvertent removal  
of a pressurized gas canister from the frame during use, said  
25 level of safety being defined by: 1) the bolted connection  
that holds the as canister to the central panel; 2) the  
inclined and transverse members being configured to hold a  
canister in one of the storage spaces; and 3) a cotter pin  
that prevents loosening of a bolted connection.